YAGUPOL'SKIY, L.M.; GANDEL'SMAN, L.Z.; TRUSHANINA, L.I.
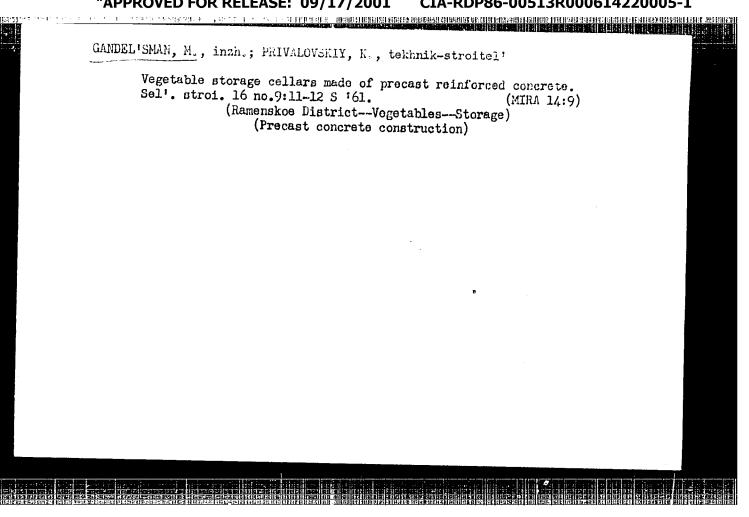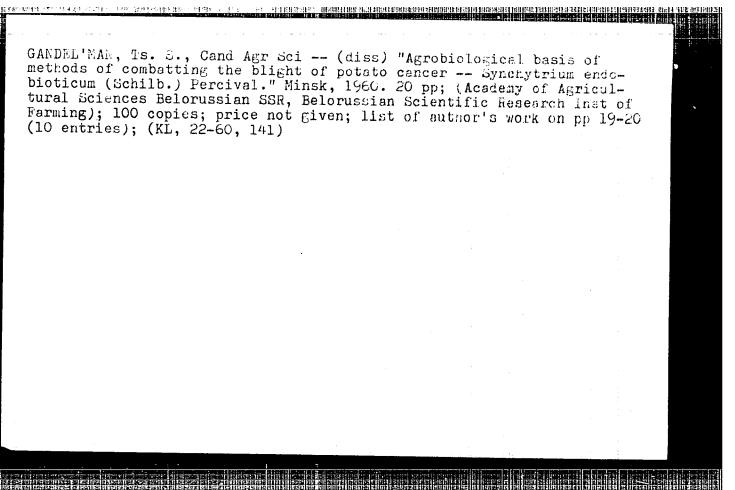
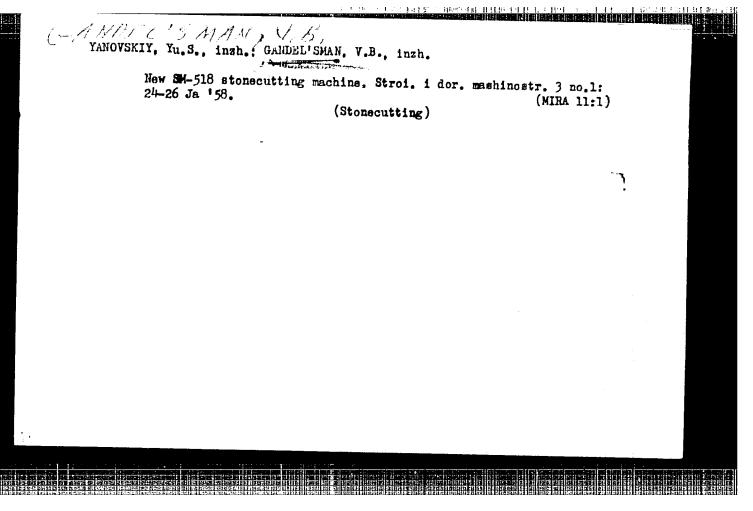Relationship between the structure and photostability of fluorine-containing dyes. Ukr. khim. zhur. 31 no. 12: 1301-1305 '65   (MIRA 19:1)

1. Institut organicheskoy khimii AN Ukr SSR. Submitted June 25, 1964.

GANDEL'SMAN, M., inzh.; PRIVALOVSKIY, K., tekhnik-stroitel'

Vegetable storage cellars made of precast reinforced concrete.
Sel'. stroi. 16 no.9:11-12 S '61. (MIRA 14:9)
(Ramenskoe District--Vegetables--Storage)
(Precast concrete construction)

GANDEL'MAN, Ts. S., Cand Agr Sci -- (diss) "Agrobiological basis of
methods of combatting the blight of potato cancer -- Synchytrium endo-
bioticum (Schilb.) Percival." Minsk, 1960. 20 pp; (Academy of Agricul-
tural Sciences Belorussian SSR, Belorussian Scientific Research Inst of
Farming); 100 copies; price not given; list of author's work on pp 19-20
(10 entries); (KL, 22-60, 141)

GANDEL'SMAN, V.B.,

YANOVSKIY, Yu.S., inzh.; GANDEL'SMAN, V.B., inzh.

New SM-518 stonecutting machine. Stroi. i dor. mashinostr. 3 no.1:
24-26 Ja '58.   (MIRA 11:1)

(Stonecutting)

AUTHORS: Gandel'sman, V.B., and Gal'perin, M.I. Engineers 116-58-4-17/23

TITLE: Machines for the Extraction of Natural Wall and Lining Stones (Mashiny dlya dobychi yestestvennogo stenovogo i oblitso-vochnogo kamnya)

PERIODICAL: Mekhanizatsiya Trudoyëmkikh i Tyazhëlykh Rabot, 1958, Nr 4, pp 37-40 (USSR)

ABSTRACT: The authors give a detailed description of various stone cutting and stone moving machines produced by the Moskovskiy zavod "Strommashina" (Moscow "Strommashina" Plant). In 1956 the USSR produced 3,600,000 cubic meters of natural wall stone, or 1.5 billion standard bricks. By 1960, stone production is supposed to reach 15,250,000 cubic meters. The following Soviet inventors have played an important role in developing stone cutting machinery: Petrik, Zil'berglit, Stolyarov, Galanin, Zastupaylo, Chegodayev, the brothers Zhuchenkov and others. There are 5 figures.

AVAILABLE: Library of Congress

Card 1/1

1. Stone cutting machines   2. Construction-Equipment   3. Quarries-
   Equipment

.₁₈(1),₂₅(5)   SOV/113-5₃-3-14/22

AUTHOR: Gal'perin, M.I., and Gandel'sman, V.B., Engineers

TITLE: A Method Increasing the Productivity of Stone Cutting
               Machines (Puti povysheniya proizvoditel'nosti kamne-
               reznykh mashin)

PERIODICAL: Mekhanizatsiya i avtomatizatsiya proizvodstva, 1959,
               Nr 3, pp 36-38 (USSR)

ABSTRACT: The authors state that more than a thousand stone cut-
               ting machines are actually in use at various quarries. In
               1958, 3.6 billion wall stones were produced, which re-
               presents 9.6% of the whole production of wall-building
               material. In 1959 this production will increase to 11
               billion units, representing 13.3% of the whole produc-
               tion of wall-building materials. In order to ensure this
               development, it is absolutely necessary to raise the stan-
               dards of mechanization in the quarries. Experience shows,
               that the best work is performed by high-bench machines,
               its basic advantage being the 13-15 saws, working simul-

Card 1/2   taneously. The authors analyze the geometrical forms of

A Method Increasing the Productivity of Stone Cutting Machines

the saw teeth, the quality of the material the instru-
ments are made from, and conclude that it is absolutely
necessary for the enterprises to redesign their stone-
cutting machines and improve their quality, and for fac-
tories producing disc-saws to improve their design and
use spade shape teeth and a negative front angle. Fur-
thermore, new machines for stone transportation and re-
moval of cuttings should be manufactured according to
new principles. There are 2 graphs and 1 table.

Card 2/2

GAL'PERIN, M.I., doktor tekhn. nauk; GANDEL'SMAN, V.B., inzh.

Cutting tools and operations of stonecutting machinery. Stroi. mat.
5 no.4:16-19 Ap '59.   (MIRA 12:6)
                        (Stonecutting--Equipment and supplies)

GANDEV, Khristo, Prof. Dr. (Sofiia)

Infiltration and establishment of the Bulgarians in Vidin at the end
of the 17th and during the 18th centuries. Izv inst etnogr BAN 4:
5-26 '61.   (EEAI 10:9)

(Bulgaria---History)

GANDEV, L.

GANDEV, L. Ways for reducing expenditure of pipes, metals and alloys in
        geologic core drilling. p. 78.

Vol. 11, No. 5, Sept./Oct. 1956.
MINNO DELO
TECHNOLOGY
Sofiia, Bulgaria

So: East European Accession, Vol. 6, No. 3, March 1957

GANDEV, Y.

New Dyes for the Wool Industry. Leka Promishlenost (Light Industry),
#12:11:Dec. 1955

GANDFOL', Ya.; MUTOVKIN, A.

Capron should replace metals. NTO 3 no.3:28-29 Mr '61.   (MIRA 14:3)

1. Zamestitel' predsedatelya Vologodskogo sovnarkhoza (for Gandfol').
2. Nachal'nik upravleniya mashinostroyeniya Vologodskogo sovnarkhoza
(for Mutovkin).

(Nylon)

GANDILYAN, P.

USSR(ARMENIA)/Cultivated Plants - Grains.   L-2

Abs Jour   : Ref Zhur - Biologiya, No 16, 25 Aug 1957, 69202

Author   : Gandilyan
Inst   :
Title   : Influence of Sowing Norms and Fertilization on Some
               Species of Winter Wheat Under Conditions in the Nor-
               Bayazet District of Armenian SSR.

Orig Pub   : Izv. AN ArmSSR, biol. i s.-kh. n., 1956, 9, No 12, 91-98

Abst   : Species of winter wheats Armyanka, Ukrainka and Karmir
               "slfaat" were studied in boggy environments. It is re-
               commended that in the dry autumn period the norm of so-
               wings be increased up to 6.5 million germinating seeds
               per hectare. Under normal conditions Karmir "slfaat"
               and Ukrainka should be sowed at 4.5-5.0 million germi-
               nating grains per hectare.

Card 1/1

GANDILYAN, P. A. Cand Agr Sci -- (diss) "Study of winter wheat under conditions of the Nor-Bayazet ~~~~~ of the Armenian SSR." Yerevan, 1957. 47 pp (Min of Agriculture USSR. Armenian Agr Inst), 150 copies (KL, 11-58, 119)

GANDILYAN, P.A.

Formation of "branching spikes" and "sprouting flowers" in
wheat. Izv.AN Arm.SSR 12 no.12:89-94 D '59.   (MIRA 13:6)

1. Kafedra botaniki, fiziologii rasteniy i mikrobiologii Arm-
yanskogo sel'skokhozyaystvennogo instituta.
                         (WHEAT)

GANDILYAN, I.A.

New wheat varieties. Dokl. AN Arm. SSR 40 no.1:57-60 '65.
(MIRA 18:7)

1. Armyanskiy sel'skokhozyaystvennyy institut. Submitted
April 22, 1964.

GANDILYAN, P.A.

A new species of Aegilops in Armenia. Izv. AN Arm. SSR. Biol.
nauki 17 no.12:113-114 D '64.   (MIRA 18:3)

1. Kafedra botaniki Armyanskogo sel'skokhozyaystvennogo instituta.

GANDIN, Boris Davydovich; MEDVEDENKO, Arkadiy Markovich; TSAL, K.I.,
        otvetstvennyy red.; ALEKSEYEVA, M.N., red.; DLUGOKANSKAYA, Ye.A.,
        tekhn.red.

[Methods of electric measurement on ships] Metody elektricheskikh
izmerenii na sudakh. Leningrad, Gos.soiuznoe izd-vo sudostroit.
promyshl. No.1. 1956. 78 p.   (MIRA 11:1)
                        (Electric measurements)

GANDIN, B.D., inzhener; MEDVEDENKO, A.M., inzhener.

Portable apparatus for cutting cables. Energetik 4 no.9:26-27 S '56.
(Cutting machines)   (MIRA 9:10)

GANDIN, B.D., inzhener; MEDVEDENKO, A.M., inzhener.

New apparatus for fitting cable cores and conductors with tips by/
pressure jointing. Energetik 4 no.10:33-36 O '56.   (MLRA 9:11)
        (Electric wire) (Electric connectors)

GANDIN, Boris Davydovich; MEDVEDENKO, Arkadiy Markovich; ORLOV, B.V.,
nauchnyy red.; SHAUBAK, Ye.N., red.; LEVOCHKINA, L.I., tekhn.red.

[Adjustment and testing of electric machinery on ships] Regulirovanie
i ispytanie elektricheskikh mashin na sudakh. Leningrad, Gos. soiuz.
izd-vo sudostroit. promyshl. No.2. 1957. 105 p.   (MIRA 11:5)
          (Electricity on ships)

GANDIN, Boris Davydovich; MEDVEDENKO, Arkadiy Markovich; KABCHEVSKIY,
M.I., nauchnyy red.; SHAURAK, Ye.N., red.; LEVOCHKINA, L.I.,
tekhn.red.

[Rules for reading diagrams and blueprints for electricity
on ships] Pravila chteniia sudovykh elektricheskikh skhem i
chertezhei. Leningrad, Gos.soiuznoe izd-vo sudostroit.
promyshl., 1958. 70 p.   (MIRA 13:1)
        (Electric engineering)   (Electricity on ships)

8(6), 9(2)   SOV/91-59-9-14/33

AUTHOR: Gandin, B.D., Molotkov, R.A., Engineers

TITLE: An Instrument for Testing Thermal Relays and Automa-
               tic Setting Devices

PERIODICAL: Energetik, 1959, Nr 9, pp 22-23   (USSR)

ABSTRACT: The authors describe an instrument for testing ther-
               mal relays and automatic setting devices with a wor-
               king current of up to 50 amps. The portable instru-
               ment has a weight of 9.7 kg and the dimensions of
               380 x 205 x 170 mm. A photograph of this device is
               shown in Figure 1. The circuit diagram is shown in
               Figure 2. The device consists of a transformer with
               a magnetic shunt, one E421 ammeter with a measuring
               current transformer of type UTT-5, signal lamp MN-3
               and the necessary number of switches. The device is
               powered by 220 volts ac. The authors present construc-
               tional details, coil data, for the transformer, which
               is shown in Figure 4. There are 1 photograph, 1 cir-
Card 1/1   cuit diagram, 4 diagrams and 1 table.

GANDIN, Boris Davydovich; FISHMAN, Lev Moiseyevich; MEDVEDEV, I.S.,
        inzh., retsenzent; FRENKEL', B.I., inzh., retsenzent;
        CHERNOMORDIKOV, G.V., nauchn. red.; NIKITINA, M.I., red.;
        CHISTYAKOVA, R.K., tekhn. red.; ERASTOVA, N.V., tekhn. red.

        [Equipment and devices for repairing electrical machines] Os-
        nastka i pribory dlia remonta elektricheskikh mashin. Lenin-
        grad, Sudpromgiz, 1963. 223 p.   (MIRA 16:10)
                        (Electric machinery--Maintenance and repair)

BUDYKO, M.I.; GANDIN, L.S., doktor fiz.-mat. nauk

Calculation of regularities of atmospheric physics in agrometeorological research. Meteor. i gidrol. no.11:3-11 N '64.

(MIRA 17:12)

1. Glavnaya geofizicheskaya observatoriya, Leningrad. 2. Chlen-korrespondent AN SSSR (for Budyko).

1951

Gaylord, N.M.

Thermal expansion of some refractories employed in the glass industry. N. V. Solomin, N. M. Chandlin, and N. A. Prokhorov. Steklo i Keram 8, No. 3, 8-11 (1951). Measurements at temps. up to 1000° were made with an optical differential dilatometer (Soviet patent No. 88256) with synthetic corundum as a standard. Curves of thermal expansion of calcined kaolin, grog refractory, and pyrometric porcelain were smooth and practically coincided with one another. Measurements of Dinas agreed with petrographic investigations and sp. gr. detns.; Dinas with sp. gr. 2.48 showed a sharp dilatometric effect at 500-600° (β → α-quartz) while Dinas of sp. gr. 2.33 showed a stronger effect at 200-250° (β → α-cristobalite). The curve for electromelted zirconmullite was smooth. The vitreous phase of zirconmullite showed a large increase in coeff. of expansion above 800° which is probably related to the appearance of dangerous stresses and the cracking of mullite blocks at 700-800° during the heating up of glass-melting furnaces. Fired corundum refractories showed no marked changes in the coeffs. of expansion but the abs. values were almost twice as high as those of grog refractories.   B. Z. K.

GANDEL', N.I.; MUTOVKIN, A.M.

Capital investment for the beet-growing areas.
Nekn... ... ... no, 3:26... (MIRA 14:2)

1. Nachal'nik proizvodstva voronezhskogo sovnarkhoza (for
Gandel'). 2. Nachal'nik upravleniya mashinostroyeniya sovnarkhoza
(for Mutovkin).
(Plant s--building)

GANDLER, A.V., kandidat tekhnicheskikh nauk.

Interoperation part conveyance. Avt. i trakt. prom. no.6:
33-34 Je '56.   (MLRA 9:9)

1. Stalingradskiy traktornyy zavod.
                           (Conveying machinery)

DAVIDOVICH, Feliks Stanislavovich; PERSHINOV, Aleksandr
        Aleksandrovich; KHOMYAKOV, N.M., doktor tekhn. nauk,
        retsenzent; GANDIN, B.D., nauchn. red.; SACHUK, N.A.,
        red.

[Testing the electrical equipment of ships] Ispytaniia
sudovogo elektrooborudovaniia. Leningrad, Sudostroenie,
1964. 168 p.   (MIRA 17:12)

GANDIN, Boris Davydovich, inzh.; MAGARSHAK, Boris Grigor'yevich,
inzh.; SOKOLOV, Andrey Grigor'yevich, inzh.; KITAYENKO,G.I.
kand. tekhn. nauk, nauchn. red.; SACHUK, N.A., red.

ᵤᵏ on the repair of electric equipment on ships]
Spravochnik po remontu sudovogo elektrooborudovaniia.
Leningrad, Sudostroenie. No.1. 1964. 240 p.
(MIRA 17:12)

GANDIN, L.S.

Central Geophysical Observatory, Red Army, (-1943-)

"On the Accuracy of Wind Measurements by Three Declination Angles of an Aeroplane,"

Iz. NAUK SSSR, Ser. Geograf. i Geofiz., No. 1-6, 1944.

Gandin, L. S.

5.7-34

Gandin, L. S. Prilozhenie teorii trekhbazisnykh nabliudenii k zadacha artilleriiakoi   551.501:551.596.1
zvukovoi razvedki. [Application of theory of observations from three points to the problem
of acoustical artillery reconnaissance.] U.S.S.R. Glavnoe Upravlenie Gidrometeorologicheskoi
Sluzhby, Trudy Nauchno-issledovatel'skikh Uchrezhdenii, Ser. 1, Meteorologiia, No. 31:25-33,
1946. 5 figs., table, 5 refs., 7 eqs. DLC—The conditions for more effective construction of
nonalignment triangles are analyzed and the dependence of the accuracy on distance, length
of base and other factors are discussed. Subject Headings: 1. Triangulation 2. Acoustical
propagation 3. Military meteorology.—N.T.Z.

ANS/AB

551.5.55:061.1

3.1-15
Solovelchik, R. E. and Gandin, L. S. Itogovaia sessiia Uchenogo Soveta Glavnoi Geofisicheskoi Observatorii po rabotam 1946 g. [Final session of the Learned Council of the Central Geophysical Observatory for 1946.] *Meteorologiia i Gidrologiia*, No. 1, 78-80, 194.
DWB—The meetings of the session consisted of general and sectional meetings. on separate groups of meteorological problems. Ten papers were presented at the general meeting. the sectional meetings, 3 groups of problems were discussed: 1) experiments and problems meteorology; 2) climatology and forecasts; 3) physics and dynamics of the atmosphere. Subject Headings: 1. Meteorological conferences 2. U.S.S.R. I. Leningrad. Glavnaia Geofisicheskaia Observatoriia.—C.K.

METALLURGICAL LITERATURE CLASSIFICATION

GANDIN, L. S.

Gandin, L. S.

Theoretical Explanation of the Observed Lateral Distribution of Sun Spots

Doklady Akademiya Nauk, SSSR
Vol. 55, 1947, pp. 705

From: D. H. L. Guide to R.-Scientific For. Lit. No. 2, Vol. 1, May 1948, p. 3

GANDIN, L.S.

5.5-140
551.531:551.506.5

Gandin, L. S. and Dubov, A. S. Kompleksnaia ekspeditsiia 1947 goda po izuchaiiu atmosfernoi turbulentnosti. [The complex expedition of 1947 for the study of atmospheric turbulence.] Leningrad. Glavnaia Geofizicheskaia Observatoriia, Trudy, 16(18):5–9, 1949. 4 figs. append. p. 136–143. DLC—A series of observations, devoted to all aspects of atmospheric turbulence, was made at the station Dolgoprudnaia (near Moscow) in order to test theoretical formulas proposed by BUDYKO, LAIKHTMAN, ERTEL and others. This paper serves as an introduction to 11 papers, published in the same volume, and describes the general conditions of the expedition, the program of measurements and the location of instruments. The appendix presents profile data for temperature (surface, 0.2, 0.55, 20 m), and data for the radiation balance and weather conditions. The time distance is 20 min (for 15 days,, but the conditions during the night are not covered. Subject Headings: 1. Micrometeorological profiles 2. Turbulence research 3. Dolgoprudnaia Station, Moscow District, U.S.S.R.—A.I.

GANDIN , L. S.

/.S-95

533.311:551.181

Gandin, L. S., Sravnitel'nyĭ analiz nekotorykh metodov opredeleniia koeffitsienta turbulentnogo peremeshivaniia. (A comparative analysis of some methods for determination of the coefficient of turbulent mixing.) *Leningrad. Glavnaia Geofizicheskaia Observatoriia. Trudy*, 16(78):52-81, 1949. 17 figs.; 20 refs.; 61 eqs. DLC A detailed comparitive analysis of the two main directions in Russian studies on atmospheric turbulence. The tests are based on a large series of wind and temperature profiles, as well as on measurements of horizontal and vertical wind pulsations. The basic assumption of BUDYKO is that von KÁRMÁN's constant does not hold for nonadiabatic conditions, but depends on stability. Besides PRANDTL's roughness height he introduces only one additional parameter, LAIKHTMAN introduces two additional parameters in a modified power law. Actual independent observations show the superiority of BUDYKO's method, which was selected as the best second approximation. The influence of errors on the result is studied in detail, and nomograms are given for practical computations. *Subject Headings:* 1. Turbulence theory 2. Atmospheric turbulence 3. Exchange coefficient. I. Budyko, M. I. II. Laikhtman, D. L. (...).

Gandin, L. S.

S.6-160
Gandin, L. S. and Duboy, A. S. Ob opredelenii khoda koeftsienta peremeshchenila s vysotoi s pomoshch'iu nabliudenila nad rasseianiem vremen padenila tlazhelykh chastits. [Determination of the variation with height of the exchange coefficient with the aid of observations on the dispersion time of settling of heavy particles.] *Leningrad. Glavnaia Geofizicheskaia Observatoriia, Trudy*, 16(78):93-101, 1949. 8 refs., 42 eqs. DLC--It is proposed to observe the standard deviation of the falling time of heavy particles in order to compute the magnitude of the exchange coefficient, assuming a linear variation with height (0). The authors applied this approach to a model, where the exchange coefficient (K) is constant above a certain level (h), solving the differential equation

$$\frac{dq}{dt} - v\frac{\partial q}{\partial z} = K\frac{\partial^2 q}{\partial z^2} \quad (Z \geq h)$$

$q(z,t)$—concentration of the particles (balloons); t—time; v—critical fall velocity of the particles. Combining their solution with IUdin's results for the layer near the ground, the authors obtain:

$$K_4 = \frac{(E_1 - E_4) v^2}{2(H_1 - H_4)^2}$$

K_4—the constant exchange coefficient above h; E_1, E_4—time dispersion for the first and second experiment with the heights H_1 and H_4 for the release of the particles, assuming that $H \geq h$. A more complicated solution is found for the case when one of the releasing heights is below h. Subject Headings: 1. Exchange coefficient 2. Turbulence observations.   I. IUdin, M. I.--A. A.

666

GANdiN, L.S

Gandin, L. S. On the convergence of the method of Svec.
Akad. Nauk SSSR. Prikl. Mat. Meh. 14, 441-443 (1950).
(Russian)

The polynomial approximation for the boundary layer
velocity profile was developed by Svec [same journal 13,
257–266 (1949); these Rev. 11, 277] by application of a
method of iteration. By organizing in the same manner a
rigorous solution of the problem, the convergence of the
iterative process is established.   *A. Weil*

Source: Mathematical Reviews.   Vol 12   No. 5

GANDIN; L.S.

SJ 211

Gandin, L. S. Problems vetrovykh nagruzok na stroitel'nyi sooruzhenia kak zadacha prikladnoi meteorologii. [The problem of wind load upon structures as a task of applied meteorology.] Leningrad. Glavnaia Geofizicheskaia Observatoriia. Trudy, No. 31(93)(1), 1951, Ag. 12, tabs.

S eqs. DLC—The author shows that the damage inflicted by winds upon structures comes that result of changes in wind load caused by sudden changes in barometric pressure but on changes of wind load depending upon the maximum wind speed, direction and structure of the wind. For high buildings, the change of wind load with elevation must be considered and the following formula is suggested, $\frac{q}{q_1} = \ln^2 \frac{z}{z_0} / \ln^2 \frac{z_1}{z_0}$. The problems of determining the wind profile of the resistance of structures and the regional distribution of maximum wind velocity in the U.S.S.R. are considered. (Same item as 3.9-255, Sept. 1952. MAB.) Subject Headings: 1. Wind load on structures 2. Wind pressure 3. Gusts 4. Wind structure 5. Applied meteorology 6. U.S.S.R.—L.K.D.

GANDIN, L.S.

On the transformation of wind profiles. Trudy GGO   no.33:71-84
'52.   (MIRA 11:1)

(Winds)

GANDIN, L.-S.

Mathematical Reviews
Vol. 14 No. 7
July - August, 1953
Analysis.

Gandin, L. S., and Solovelʹik, R. E. On the theory of evaporation for a bounded water-basin. Doklady Akad. Nauk SSSR (N.S.) 86, 55-57 (1952). (Russian)

Dans l'étude de ce problème les prédécesseurs de Gandin and Solovelʹik n'ont pas tenu suffisamment compte de plusieurs facteurs importants: on a supposé sans raison le coefficient d'échange indépendent d'altitude, on a donné une forme insuffisamment générale aux conditions à la limite et on n'a pas tenu compte de brassage turbulent horizontal. Les auteurs donnent à l'équation fondamental la forme

$$(1) \qquad u\frac{\partial q}{\partial x} = K_r\frac{\partial^2 q}{\partial x^2} + K_n\frac{\partial^2 q}{\partial y^2} + \frac{\partial}{\partial z}\left(K_r\frac{\partial q}{\partial z}\right)$$

avec q - humidité spécifique, $u = u_1 z^n$ vitesse de vent (dirigé suivant l'axe X), $K_r = K_{r1} z^m$, $K_v = K_{v1} z^n$, $K_r = K_{r1} z^m$ coefficients d'échange suivant les axes de coordonnées, K_{r1}, K_{v1}, K_{r1}, y_1 constantes données, m, n nombres rationnels. La concentration de vapeur sur la surface d'eau vérifie les conditions limites: $q = F(x, y)$; q limité à l'infini. Les auteurs donnent la solution effective du problème sous la forme intégrale, comportant les fonctions   *V. A. Kostitzen.*

GANDIN, LEV SEMENOVICH

PHASE I BOOK EXPLOITATION   14

Gandin, Lev Semenovich; Laykhtman, David L'vovich; Matveyev, Leonid Tikhonovich; and Yudin, Mikhail Isaakovich

Osnovy dinamicheskoy meteorologii (Principles of Dynamic Meteorology) Leningrad, Gidrometeoizdat, 1955. 646 p. 4,000 copies printed.

Ed. (title page): Laykhtman, D. L., Professor, and Yudin, M. I., Professor; Responsible Ed.: Pyatygin, K. V.; Ed. (inside book): Vlasova, Yu. V.; Tech. Ed.: Soloveychik, A. A.

PURPOSE: This book, which is a treatise on dynamic meteorology developed by the author in the course of lecturing at various universities, is intended as a textbook for meteorology students of vuzes and as a handbook for specialists in the field of meteorology and climatology.

COVERAGE: The book examines the basic methods of dynamic meteorology, making extensive use of mathematical treatment in analyzing the physical processes taking place in the atmosphere. The latest developments

Card 1/13.

2

Principles of Dynamic Meteorology   14

in this branch of meteorology are presented. Chapters VII and X were written
by S. I. Titov and A. S. Dubov, respectively. There are 65 references,
43 Soviet, 13 English and 9 German.

TABLE OF
CONTENTS:

Card 2/ 13

GANDIN, L. S.

Gandin, L. S. and Sinel'nikova, K. K., O prognoze skorosti peremshcheniia barichekikh
tsentrov. [Forecasting the velocity of movement of baric centers.] Meteorologiia i Gidro-
logiia, Moscow, No. 3:27-30, May/June 1955. table, 2 refs.; DWB--The author
develops a quantitative method for forecasting the movement of pressure centers based upon
the transformation of known extrapolation formulas and the result of verification of the
prepared method and of other methods on the basis of extensive material. The formulas
developed are:

$$Ve = \frac{B^2}{P_c - P} \frac{\partial p_t}{\partial y} \quad \text{and} \quad V_s = -\frac{B^2}{P_i - P_c} \frac{\partial}{\partial}$$

The procedure for calculating the movement of pressure centers and that of verification are
outlined and the forecasting is compared with the method of V. I. Bujulus. Subject Heading:
1. Pressure tendency forecasting.--I.L.D.

GANDIN, L.S.

        Characteristics of evaporation near the shore line. Trudy GGO no.55:
26-35 '55.   (MLRA 9:8)
                        (Evaporation)

GANDIN, L.S.

       Calculating heat loss of buildings under different climatic condi-
tions. Trudy GGO no.55:64-73 '55.   (MLRA 9:8)
                       (Insulation (Heat))

BUDYKO, Mikhail Ivanovich; GANDIN, L.S., otvetstvennyy redaktor;
YASNOGORODSKAYA, M.M., redaktor; SOLOVEYCHIK, A.A., tekhnicheskiy
redaktor

[Heat balance of the earth's surface] Teplovoi balans zemnoi
poverkhnosti. Leningrad, Gidrometeor. izd-vo, 1956. 253 p.
          (Evaporation)   (MLRA 10:6)
          (Earth temperature)

Gandin, L. S.

K ZADACHE O LAMINARNOM POGRANICHNOM SLOE U PORISTOI STENKI. L. S. Gandin and R. E. Solovejchik. Prikl. Mat. i Mekh., Sept.-Oct. 1956, pp. 663-665. In Russian. Study of the problem of laminar boundary layer along a porous wall. The characteristic feature distinguishing this problem from that of Blasius is that the value of the component velocity in the direction perpendicular to the wall is equal to a given value of W and not to zero. The velocity W and the velocity of the basic flow U is constant and the Shvetz approximate method is used for obtaining a solution.

SOV/124-57-9-10503

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 9. p 88 (USSR)

AUTHORS: Gandin, L. S., Soloveychik, R. E.

TITLE: A Generalization of the Transformation Theory of Evaporation (Obobshcheniye transformatsionnoy teorii ispareniya)

PERIODICAL: Tr. Leningr. gidrometeorol. in-ta, 1956, Nr 5-6, pp 248-262

ABSTRACT: It is noted that the currently developed transformation hypotheses of the theory of evaporation take into consideration the heat flux reaching the evaporating surface that is expended on evaporation and on turbulent-heat transfer into the air, as well as the dependence of the saturation humidity on the temperature of the evaporating surface. These schemes, however, do not take into consideration the turbulent heat exchange in the water basin, such exchange being connected with the accepted assumption of the steady-state nature of the transformation processes. This leads to an overrating in the calculated evaporation values in the warm seasons of the year and to their underestimation during the cold seasons. The paper proposes a generalization of the theory which jointly solves the equations of the convective diffusion of heat and humidity in the air and the equations of the

Card 1/2

SOV/124-57-9-10503

'A Generalization of the Transformation Theory of Evaporation

turbulent heat exchange in the water at a given rate of humidity and temperature variation with respect to elevation and time above the shoreline, with a given condition of moisture saturation in the air at the evaporating surface (assuming that the temperature of the air and the water at that surface coincide) and at a given heat balance of the underlying surface.. It is also assumed that the surface layer of the air is "quasi-stationary" and that its vertical air-and-moisture currents are constant with respect to altitude, while in the upper layer of the air the turbulent exchange coefficient and the air velocity are constant with altitude. The solution is being sought under the assumption that the deficit of the specific humidity at the surface of the dry land and the difference in the flows of shortwave radiation absorbed by the surfaces of the water and dry land, respectively, are prescribed periodic functions of time. Solutions for the temperature and humidity of the air and for the temperature of the water are being sought in the form of Fourier series with respect to time, while the equations for the amplitudes of Fourier's harmonics are solved with the help of a Laplace transform along the horizontal coordinate. The solution obtained is analyzed in detail. Numerical examples are not submitted.
A. S. Monin

Card 2/2

GANDIN, L.S. (Leningrad); SOLOVEYCHIK, R.E. (Leningrad)

One variation of the approximate method of M.E.Shvets. Prikl.mat.
i mekh. 20 no.2:295-296 Mr-Ap '56.   (MIRA 9:7)
        (Approximate computation)

USSR / Atomic and Molecular Physics. Heat   D-4

Abs Jour   : Ref Zhur - Fizika, No 4, 1957, 9020

Author   : Gandin, L.S., Soloveychik, R.E.
Title   : Distribution of Heat in an Infinite Medium in the Presence
             of a Flat Separation Boundary.

Orig Pub   : Zap. Leningr. gorn. in-ta, 1956, 33, No 3, 205-212

Abstract   : No abstract.

Card   : 1/1

SOV/36-56-60-2/10

AUTHOR: Gandin, L. S. and Soloveychik, R. E.

TITLE: Temperature Changes with Advection (O periodicheskom khode
               temperatury pri nalichii advektsii)

PERIODICAL: Trudy Glavnoy geofizicheskoy observatorii, 1956, Nr 60, pp 23-31 (USSR)

ABSTRACT: The author discusses a simple physical scheme in considering the
               effects of turbulent transformation of air masses on the daily rate
               of temperatures. The velocity of wind, the coefficient of turbulence
               in the atmosphere, and the coefficient of thermoconductivity are con-
               stant. The mathematical formulation and solution of the problem are
               given together with a numerical example. The text includes 2 figures.
               There are no references.

Card 1/1

GANDIN, L. S.

Application of absolute currents in the dynamics of the atmospheric
baudary layer. Trudy GGO no.66:44-53 '56.   (MIRA 10:3)
                        (Atmosphere)

156

AUTHORS: Gandin, L. S., Laykhtman, D. L., Sopots'ko, Ye.A., Shleneva, M. V.

TITLE: Problems in Dynamic Meteorology (Zadachnik po dinamicheskoy meteorologii)

PUB. DATA: Gidrometeorologicheskoye izdatel'stvo, Leningrad, 1957, 182 pp., 3000 copies.

ORIG. AGENCY: None given

EDITORS: Laykhtman, D. L., Professor; Vlasova, Yu. V.; Tech. Ed.: Braynina, M. I.

PURPOSE: The book serves as a textbook for meteorological departments of hydrometeorological institutes.

COVERAGE: The problems and their solution comprise the practical exercises for a course in dynamic meteorology. The problems are grouped in specific units as can be seen from the table of contents. Explanatory notes are attached to every chapter and some basic data necessary for solving the problems are inserted at the end. Author mentioned: Ludin, M. I. There are no references.

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Problems in Dynamic Meteorology (Cont.)

TABLE OF CONTENTS:	Problem numbers	Page
Ch. I. Basic Characteristics of Meteorological Fields	1-106	5
1. Calculating gradients of meteorological elements and their components	1-21	5
2. Connection between total and partial time derivatives	22-37	9
3. Evaluation of the orders of magnitude of meteorological elements and their derivatives	38-63	11
4. Divergence and vortex of velocity of wind	64-91	13
5. Structure of the turbulent fields in the atmosphere	92-106	17

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Card 5/7

AVAILABLE: Library of Congress $\left(QC\ 156.L27 \right)$

Card 7/7

AUTHOR: Gandin, L. S.   49-3-14/16

TITLE: On the stability of waves at the surface of division of
         flows which are at an angle to each other. (Ob
         ustoychivosti voln u poverkhnosti razdela potokov,
         napravlennykh pod uglom drug k drugu).

PERIODICAL: "Izvestiya Akademii Nauk, Seriya Geofizicheskaya"
         (Bulletin of the Ac.Sc., Geophysics Series), 1957, No.3,
                   pp.407-410 (U.S.S.R.)

ABSTRACT: This problem was first investigated by Sretenskiy, L.N.(1)
         who pointed out its possible importance in meteorology.
         Later Kochina, I.N. (2) studied the flow of waves around
         barriers in such a two-layer medium. In this paper the
         case of progressive waves is considered, paying main
         attention to analysing their stability. The results are
         not directly applicable to meteorology problems since the
         limitation of incompressibility and particularly of uniformity
         of each layer of the liquid is not adequately valid in the
         atmosphere and, in addition, the turbulent viscosity is of
         appreciable importance near to the surface of division.
Card 1/2 In the calculations the density and the horizontal speed
         component of the main flow in the top medium and the bottom
         medium are assumed constant and the vertical dimension of

49-3-14/16

On the stability of waves at the surface of division of
flows which are at in angle to each other. (Cont.)

each of the layer is assumed infinite and the influence of
viscosity and of the Coriolis force are disregarded.
Theoretical analysis shows that two mutually perpendicular
straight lines exist, one of which corresponds to maximum
instability, whilst the other corresponds to maximum
stability. For intermediate directions of wave propagation
the range of unstable wave length is not zero but it is
below the maximum value. If the main flows are co-linear,
those waves will be the most unstable which propagate in a
direction co-linear with these flows, whilst those propagat-
ing in a perpendicular direction will always be stable.
If the speeds of the main flows are the same, the waves
propagating in the direction of the bisectrix of the angle
between the directions of the main flows will always be
stable, whilst the most unstable will be the waves which
propagate in a direction perpendicular to that bisectrix.
There are one figure and 2 Slavic references.

SUBMITTED: May 26, 1956
ASSOCIATION: Chief Geophysical Observatory imeni A.I. Voyeykov.
    (Glavnaya Geofizcheskaya Observatoriya im. A. I. Voyeykova).
AVAILABLE: Library of Congress

Card 2/2

GANDIN, L.S.; DUBOV, A.S.

Qualitative analysis of the vortex equation. Meteor.i gidrol.
no.4:36-37 Ap '57.

(Atmosphere)

(MLRA 10:5)

GANDIN, L.S.; DUBOV, A.S.; SOLOV'YEV, V.A.

In the Voeikov Main Geophysical Observatory. Meteor. i gidrol.
no.8:70-72 Ag '57.   (MIRA 10:8)
                        (Meteorology)

AUTHORS: Gandin, L. S. and Soloveychik, R. E.   36-57 -69-2/16

TITLE: A Theory of Evaporation Based on Horizontal Mixing (K teorii ispareniya pri uchate gorizontal'nogo peremeshivaniya) (Part I)

PERIODICAL: Trudy Glavnoy geofizicheskoy observatorii 1957, Nr 69, pp 11-24 (USSR)

ABSTRACT: The authors examine the process of evaporation over a limited area and emphasize the necessity of accounting for the phenomenon of horizontal mixing, in addition to the usual consideration of vertical turbulence. The authors claim that horizontal intermingling is particularly effective in the near-surface layer of the atmosphere. O. G. Sutton and some Russian scientists, such as M. P. Timofeyev, are criticized for their failure to account for horizontal turbulence in their studies of evaporation rates. The authors believe that horizontal intermingling takes place with, as well as against the wind. The mathematical formulas deduced make it possible to calculate vapor concentration in the near-surface layer of air and thus explain the process of horizontal turbulence. Some of these ideas were suggested by A. M. Zhuravskiy. There are 2 figures and 7 references, of which 4 are Soviet and 3 English. This is the first of two articles on the subject of horizontal mixing.

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Card 1/1

36--57-69-3/16

AUTHOR: Gandin, L. S. and Soloveychik, R. E.

TITLE: A Theory of Evaporation Based on Horizontal Mixing (K teorii ispareniya
pri uchete gorizontal'nogo peremeshivaniya) (Part II)

PERIODICAL: Trudy Glavnoy geofizicheskoy observatorii 1957,
Nr 69, pp 25-35 (USSR)

ABSTRACT: This is the second article on horizontal mixing and its role in the pro-
cess of evaporation. The first article offers formulas for calculating vapor conden-
sation over some given area of evaporation. The second article deals directly with
the relationship of horizontal mixing to evaporation and offers a mathematical solu-
tion of the problem. The conclusion essentially is that the coefficients of wind
velocity and those of horizontal intermingling depend 1 the altitude; the effect
of horizontal mixing decreases with altitude, whereas the importance of vertical
mixing increases. There are 3 references, of which 2 are Soviet and 1 English.

AVAILABLE: Library of Congress

Card 1/1

Gandin, LS.

36-71-12/16

AUTHOR: Gandin, L. S.

TITLE: Two-dimensional Linear Interpolation of Meteorological Data (O lineynoy interpolyatsii meteoroligcheskikh elementov v dvukh izmereniyakh)

PERIODICAL: Trudy Glavnoy geofizicheskoy observatorii , 1957, Nr 71, pp. 163-168 (USSR)

ABSTRACT: The article is conjectural treatment of a problem in mathematical interpolation within certain limits for a single element. The average square error for such an interpolation is given and a case of two-dimensional interpolation such as barometric leveling is presented. Evaluation of errors by increasing the number of observations and adjusting them by the method of least squares is suggested. Simplified and adjusted formulas for structural functions of wind, temperature, and humidity are discussed. There is 1 figure and 3 USSR references.

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$(\mathcal{G} \mathcal{A} \mathcal{U} \mathcal{D} / \mathcal{A}, \mathcal{L} \mathcal{D}$

PHASE I BOOK EXPLOITATION   SOV/4581

Leningrad. Glavnaya geofizicheskaya observatoriya

Voprosy dinamicheskoy meteorologii i teorii klimata (Problems in Dynamic
    Meteorology and the Theory of Climate) Leningrad, Gidrometeoizdat, 1958.
    125 p. (Series: Its: Trudy, vyp. 76) Errata slip inserted. 1,300 copies
    printed.

Sponsoring Agency: Glavnaya geofizicheskaya observatoriya imeni A.I. Voyeykova;
    Glavnoye upravleniye gidrometeorologicheskoy sluzhby pri Sovete Ministrov SSSR.

Ed. (Title page): M.I. Yudin, Doctor of Physics and Mathematics; Ed. (Inside book):
    Yu.V. Vlasova; Tech. Ed.: M.Ya. Flaum.

PURPOSE: This issue of the Transactions of the Main Geophysical Observatory is
    intended for dynamic and synoptic meteorologists and climatologists. It may
    also be used by students of these fields.

COVERAGE: The collection of 9 articles deals with problems in dynamic meteorology,
    the theory of climate, and the forecasting of air temperature using elements of
    the thermohydrodynamic theory. A system of climatological regionalization for
    Card 1/3

Problems in Dynamic Meteorology (Cont.)   SOV/4581

the USSR is analyzed and recent pertinent data in this regard shown graphically. No personalities are mentioned. References follow each article.

TABLE OF CONTENTS:

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Problems in Dynamic Meteorology (Cont.)   SOV/4581

Zubenok, L.I., N.A. Yefimova, and V.V. Mukhenberg. Data for the Division of
the USSR in the Climatic Regions   93

Rozhdestvenskiy, A.A. Statistical Generalization of Mul'tanovskiy's
Phase Method on the Basis of Circulation Indices   113

Arrago, L.R. Method for Solving the Atmospheric Diffusion Equation   120

AVAILABLE: Library of Congress

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                                                          12-16-60

3(7)
AUTHORS: Anapol'skaya, L. Ye., Gandin, L. S.   SOV/50-58-10-2/20

TITLE: Method of Determining the Rate of Wind Calculation for the Design
             of Wind Loads on Structures   (Metodika opredeleniya raschetnykh
             skorostey vetra dlya proyektirovaniya vetrovykh nagruzok na stroitel'
             nyye sooruzheniya)

PERIODICAL: Meteorologiya i gidrologiya, 1958, Nr 10, pp 9-17 (USSR)

ABSTRACT: The determination of the loads mentioned in the title is at present
             one of the most important problems of applied meteorology since the
             building of high constructions such as masts for television aerials,
             high-voltage lines etc. is in a rapid. development. For their com-
             putation the wind load is one of the most significant parameters.
             Three complexes can be distinguished within the problem of loads:
             a) statistic rules in the distribution of strong winds on the earth's
             surface, b) the vertical profiles of strong winds, and c) bumpiness
             of the wind and its influence upon buildings. The present paper deals
             only with question a). In order to adjust the data concerning the
             wind on the earth's surface to the high-altitude wind the equation
             of the logarithmic profile of strong wind is used. As may be easily
             understood, in a design of a construction not the absolute maximum
             of wind velocity at the respective place (a value which is quite

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SOV/50-58-10-2/20

Method of Determining the Rate of Wind Calculation for the Design of Wind Loads
on Structures

indefinite) is used as a calculation rate, but such a velocity that
is rarely attained. In addition, the value of the rate of calculation
must be different for different types of buildings according to their
structural strength. The calculation rates provide reliable results
only if they are based on very long series of observation. The vanes
of many stations have recorded for many years velocities up to
20 m/sec only. Therefore the indirect method is interesting for the
determination of the rate of wind calculation. One of the means
available may be statistic extrapolation, which means application of
the asymptotic laws of the theory of probabilities for the reconstruc-
tion of that curve section of wind velocity distribution which is
related to high velocities, on the basis of the remaining section of
the curve. Such a method is suggested by the authors. They applied
the approximation of the distribution curve of high velocity values
which is equal to that of reference 4. The function F(u) is approxi-
mated by equation (1) and after a double logarithmation of (1) the
relation (2) is obtained. If the values of F(u) are recorded in a
diagram on coordinates lg u and lg(-lg F) according to (2), the
points must form a straight line, provided the formula (1) is right
(Fig 1 for the meteorological station of Gur'yevsk).

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SOV/50-58-10-2/20

Method of Determining the Rate of Wind Calculation for the Design of Wind Loads on Structures

The calculation rates derived from it are somewhat, yet not much too low. For the determination of these velocities the straight line is continued in the direction of the high u-values and then read on the basis of the n-value prescribed (which is different for the various types of buildings). An important advantage of the method suggested is the possibility of producing in advance the corresponding net of coordinates in the quantity required. In order to check the method mentioned, the observations of a large system of weather stations in the European part of the USSR (without Caucasus), in western Siberia and Kazakhstan were investigated by means of this method. The systematic insufficiencies observed are discussed in detail in the paper mentioned in reference 1. Figure 2 shows the highest wind velocities which are occurring once within 5 years (v_5) in the area mentioned. Figure 3 presents the maximum velocities possible within 20 years (v_{20}). Therefrom it may be seen that this method of calculation permits the determination of such wind velocities which are not measurable by means of a vane.- There are 4 figures and 4 references, 3 of which are Soviet.

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GANDIN, L.S.; SOLOVEYCHIK, R.E.

Multidimensional symmetric delta functions. Zap. LGI 36 no.3:
13-15 '58.   (MIRA 16:5)
                        (Symmetric functions)

GANDIN, L.S.; SOLOVEYCHIK, R.E.

Spreading of smoke from factory chimneys. Trudy GGO no.77:84-94
'58.   (MIRA 12:4)
                              ,   . .(Smoke)

GANDIN, L.S.

PHASE I BOOK EXPLOITATION   SOV/2547

Leningrad. Glavnaya geofizicheskaya observatoriya

Voprosy dinamicheskoy meteorologii (Problems in Dynamic Meteorology)
Leningrad, Gidrometeoizdat, 1959. 91 p. (Series: Its Trudy, vyp. 81)
Errata slip inserted. 1,200 copies printed.

Sponsoring Agency: Glavnoye upravleniye gidrometeorologicheskoy sluzhby
pri Sovete Ministrov SSSR.

Ed. (Title page): M.I. Yudin, Doctor of Physical and Mathematical Sciences
and M.Ye. Shvets, Doctor of Physical and Mathematical Sciences; Ed.
(Inside book): L.P. Zakharova; Tech. Ed.: O.G. Vladimirov.

PURPOSE: This issue of the Geophysical Institute's Transactions is intended for
scientific workers and specialists in dynamic and synoptic meteorology.

COVERAGE: This collection of articles treats problems in dynamic meteorology.
The articles, for the most part, discuss computation methods of forecasting
meteorologic elements. Closely related to this is a study used at determining
vertical velocities according to aircraft vibration data. No personalities
are mentioned. References accompany each article.

Yudin, M.I., B.I. Yakovlev, L.V. Rukhovets, L.S. Orlova, and P.A. Bel'tser.
The Problem of Cyclone Evolution

Prytyrin, K.V., and R.A. Izmailymova. Results of Advance Computation
of the Displacement of Near Surface Cyclone Centers

Dubov, A.S., Y.G. Reytaara, and L.S. Makova. Comparative Analysis of
Some of the Simplest Methods of Numerical Forecasting

Gandin, L.S., and T. Dolad. Methods for Integrating the Vorticity Equation
Along an Isobaric Surface

Gandin, L.S., and P.A. Altmann. The Problem of Stabilizing the Smoothed-out
Currents Used in Graphoanalytical Forecasting Methods

Pekelis, E.M. Formulas for Advance Computation of Upper-Air Flow
Center Displacements

Dubov, A.S. The Problem of Determining Vertical Wind Velocities From
Aircraft Accelerograph Data

Zavarina, M.V. Determining the Critical Values of Richardson's
Number as an Index Criterion of Increased Atmospheric Turbulence

(GANDIN, L. S.

PHASE I BOOK EXPLOITATION   SOV/4640

Leningrad. Glavnaya geofizicheskaya observatoriya

Voprosy aviatsionnoy meteorologii (Problems in Aviation
    Meteorology)   Leningrad, Gidrometeoizdat, 1959.   66 p.
    (Series: Its: Trudy, vyp. 98) 1,100 copies printed.

Sponsoring Agencies: Glavnaya geofizicheskaya observatoriya
    imeni A. I. Voyeykova; Glavnoye upravleniye gidrometeorolo-
    gicheskoy sluzhby pri Sovete Ministrov SSSR.

Ed. (Title page): M. I. Yudin, Doctor of Physics and Mathe-
    matics; Ed. (Inside book): Yu V. Vlasova; Tech. Ed.: A. N.
    Sergeyev.

PURPOSE: This issue of the Transactions of the Main Geophysi-
    cal Observatory is intended for aerologists and meteorolo-
    gists. It will also be of interest to aerodynamicists and
    aircraft navigators.

COVERAGE: The articles in this issue treat problems in avia-
    tion meteorology. Individual papers discuss methods for

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    2

Problems in Aviation Meterology   SOV/4640

determining the atmospheric turbulence on the basis of
recordings of aircraft oscillations; the relation of os-
cillations to the meteorological conditions; and the
probability of the occurrence of aircraft bumpiness in
several regions over the Soviet Union. Problems dealing
with the horizontal and vertical extent of clouds are also
analyzed. No personalities are mentioned. References
follow each article.

TABLE OF CONTENTS:

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3(7), 3(3)   SOV/50-59-2-23/25

AUTHORS: Anapol'skaya, L. Ye., Gandin, L. S.

TITLE: Conference on Applied Climatology (Soveshchaniye po priklad-
               noy klimatologii)

PERIODICAL: Meteorologiya i gidrologiya, 1959, Nr 2, pp 69 - 70 (USSR)

ABSTRACT: Between October 27 and 31, 1958 a Conference on Applied
               Climatology was held at the Glavnaya geofizicheskaya observa-
               toriya im. A. I. Voyeykova (Main Geophysical Observatory
               imeni A. I. Voyeykov). The conference was convened upon re-
               quest of the Glavnoye upravleniye gidrometeorologicheskoy
               sluzhby (Main Administration of the Hydrometeorological Ser-
               vice). 91 institutes participated, among them 8 scientific
               research institutes of the Hydrometeorological Service, 20
               UGMS, 1? planning organizations, and 34 scientific research
               institutes of various authorities. In all, participation
               amounted to 254 persons. 22 papers were read. V. P. Pastukh
               spoke on the experience of the GGO in the field of aiding
               the economy, O. A. Drozdov on space and time characteristics
               of the climate, V. N. Sokolov on the use of the calculation
Card 1/4   technique, N. K. Kiyukin on the work accomplished in the
    2

Conference on Applied Climatology   SOV/50-59-2-23/25

field of applied climatology of the Northeast of the USSR,
Ye. S. Rubinshteyn spoke on the method developed by him
for the determination of temperatures for the purpose of
calculating the five cold days on the basis of the data
of the monthly average temperature of the coldest month
of the year. G. N. Ustinov suggested in his paper some
principles by means of which the territory of the USSR should
be divided in regions (for the planning of living quarters).
V. M. Il'inskiy gave a survey of the requirements made of
climatic data in regard of the projecting of protective
structures. L. Ye. Anapol'skaya and L. S. Gandin reported
on the method of statistical extrapolation developed by them
for the determination of the frequency of high wind velocities.
M. P. Barshteyn proposed a method for the determination of
the gust coefficient based on the spectrum theory of turbulent
pulsations. V. A. Otstavnov gave a survey of the require-
ments made of climatic data in calculating wind and snow
loads on buildings. G. I. Chirakadze reported on the ex-
perience made in the consideration of the climate of health
resorts in the Caucasus in planning and construction.

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21112
S/531/59/000/98/002/005

AUTHOR: Gandin, L. S.

TITLE: Oscillations of an Aircraft Equipped With Autopilot in a
            Turbulent Atmosphere

SERIAL: Leningrad. Glavnaya geofizicheskaya observatoriya im. A. I. Voyeykova.
            Trudy, no. 98, 1959, Voprosy aviatsionnoy meteorologii, 17-37.

TEXT: A theory of oscillations for an autopiloted aircraft flying in a turbulent
atmosphere is established and analyzed. The establishment of the theory was under-
taken for two reasons: 1) in order to find a solution for ascertaining the effects
of an autopilot on an aircraft's oscillations in a given type of atmospheric turbu-
lence whereby the "optimal" autopilot problem might be taken into consideration [which
for brevity is termed the direct problem], and 2) in order to find a solution for
ascertaining the effects of an autopilot on the relationship between recorded charac-
teristics of an aircraft and the actual turbulent pulsations of the velocity vector
in the atmosphere [or more briefly, the indirect problem]. The author proceeded by
employing two complementary methods of deriving equations which associate aircraft
oscillations and turbulent pulsations of the wind speed in the atmosphere. The ad-
vantages and limitations of each method are reviewed in some detail. The structural
functions' method first worked out by M.I. Yudin in 1946 is used for solving the

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Oscillations of an Aircraft Equipped With Autopilot   S/531/59/000/98/002/005
in a Turbulent Atmosphere

direct problem, and the spectral analysis method, subsequently developed by
A. S. Dubov (Ref. 2: Trudy GGO, no. 51(113), 1955) is used for the indirect
problem. First, equations are generalized for small longitudinal oscillations of
an aircraft equipped with an autopilot from A. S. Dubov's formulas presented in
[1], [2] and [3]. The methods in which these equations were derived, transformed,
and rewritten in nondimensional form and in the form of matrices will be found in
the three references cited above for A. S. Dubov. First, equations describing the
effect of a linear autopilot on small longitudinal aircraft oscillations are re-
written for the special case of an autopilot which reacts instantaneously to a
change in pitch angle corresponding to an elevator displacement. In formulating
equation of the direct and indirect problems, relationships between recorded
accelerations and components of velocity vectors of the air's motions have been
established as follows: in the direct problem

$$\Delta_{I} n_2 = \Delta_{I}^2 U_2 + \Delta_{I}^1 U_1$$

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(:cillations of an Aircraft Equipped With Autopilot   S/531/59/000/98/002/00:
  a Turbulent Atmosphere

and in the indirect problem

$$\Delta_{II} u_2 = \Delta_{11^2} n_2 + \Delta_{11^1} n_1$$

where n_1 and n_2 are the recorded horizontal and vertical overloads at the aircraft's center of gravity; u_1 and u_2 are the horizontal and vertical components of the velocity of the air's motions; the coefficients are differential determinants each of which after being determined and regrouped into equations has coefficients which are expressed in terms of Dubov's aerodynamic coefficients. Spectral transfer functions are used first for the case of $u_1 = 0$, that is, horizontal pulsations of the velocity are lacking, where expressions are derived for the square of the transfer function of the u_2 and n'_2 amplitudes and for the lag of n_2 phase in comparison with the phase of the u_2 function. Secondly, the spectral transfer functions are used for both horizontal and vertical pulsations with assumptions of isotropy of the turbulent pulsations, and of a 1 : 10 ratio between the horizontal and vertical aircraft overloads for all portions of the spectrum of frequencies. On the basis of formulas obtained, a calculation for the same aircraft and the same flight attitudes was made as A.S. Dubov did in Ref. 3. The results of calculating the transfer functions are presented

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in a Turbulent Atmosphere

graphically in Fig. 1-8 for both the PO-2 aircraft plane and for the high-speed
aircraft. An analysis of the curves in these figures results in several
conclusions. The operation of an ideal autopilot does not result in diminishing
an aircraft's oscillations over the entire spectrum of frequencies. In dimin-
ishing amplitudes of the oscillations in individual sectors of the frequency
spectrum, the ideal autopilot augments the amplitudes in other sectors. In the
frequencies' interval of practical interest, the ideal autopilot, as a rule,
diminished the oscillation amplitudes of smaller frequencies, and augmented the
oscillation amplitudes of the larger frequencies. The ideal autopilot had no
effect on the transfer function of the oscillations' amplitudes for very large
and for very small frequencies. The effect of the autopilot on the transfer
function was characterized also by the "truncation" of the maxima and minima of
these functions: the maximum values of the functions decrease, while the minimum
increase, as a result of which the transfer function approaches a monotonic
function. The influence of an autopilot on the PO-2 aircraft, which even without
an autopilot is very stable, is small. The autopilot influence is much more signifi-
cant on the high-speed aircraft. This influence is expressed chiefly by the
previously mentioned "truncation" of the maxima and minima of the transfer functions.
The transfer function of the horizontal overload amplitudes to vertical velocities
in the atmosphere is virtually constant over a very wide sector of the spectrum of
frequencies. The list of references include the following five works:

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Oscillations of an Aircraft Equipped With Autopilot   S/531/000/96/002/005
.. a Turbulent Atmosphere

1. Dubov, A. S.   The determination of vertical wind gusts from readings of an
                  accelerograph placed at the aircraft's center of gravity. Trudy,
                  GGO, no. 16, (78), 1949

2. Vorontsov, P. A., and A. S. Dubov. Procedure in investigating the structure
                  of an air current with an aircraft. Trudy, GGO, no. 51 (113), 1955

3. Dubov, A. S.   Contribution to the question of determining vertical wind speeds
                  from data of an aircraft's accelerograph. Trudy GGO, no. 81, 1959

4. Ostoslavskiy, I. V.,and G. F. Kalachev. Longitudinal stability and controlability
                  of an aircraft. Oborongiz, 1949

5. Ol'man, B. V., V. P. Tokarev, and Ye. I. Solov'yev, Autopilots. Oborongiz, 1946.

The Russian abstract of this article appeared in Referativnyy Zhurnal, Geofizika,
1960, No. 11, Ref. no. 14468, p. 167.

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GANDIN, L.S.

Numerical map analysis. Trudy GGO no.99:48-66 '59.
(MIRA 13:6)

(Weather forecasting)

GANDIN, L.S.

The problem of optimum interpolation.   Trudy GGO   no.99:67-76
'59.   (MIRA 13:6)
              (Weather forecasting)

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AUTHORS: Gandin, L. S., Soloveychik, R. E.   SOV/20-126-1-15/62

TITLE: The Effect of Horizontal Mixing in the Direction of the Wind Upon
                Evaporation From Bounded Water Reservoirs (Vliyaniye gorizontal'nogo
                peremeshivaniya v napravlenii vetra na ispareniye s ogranichennykh
                vodoyemov)

ABSTRACT: An expression for the evaporation can be derived by using the
                initial equation together with the solution derived in a previous
                paper by the authors (Ref 1) (concerning the problem of distribution
                of vapor over the evaporizing surface). The authors investigate -
                beside the transmission of vapor by the wind and the mixing in
                vertical direction - only the horizontal mixing in the wind
                direction. The simultaneous consideration of the horizontal mixing
                in the direction vertical to the wind causes mathematical
                difficulties. The joint influence of longitudinal and transverse
                mixing can be considered by inserting a certain factor into the
                formula derived in the present paper. The distribution of the
                vapor concentration results from the solution of the equation

Card 1/3 $u\frac{\partial q}{\partial x} = \kappa_x \frac{\partial^2 q}{\partial x^2} + \frac{\partial}{\partial z}(k_z \frac{\partial q}{\partial z})$ under the boundary condition $q|_{z=0} = f(x)$.

The Effect of Horizontal Mixing in the Direction of the Wind SOV/20-126-1-15/62
Upon Evaporation From Bounded Water Reservoirs

Also the condition of limitation on the surface has to be
considered. The rather extensive solution of this problem is
explicitly indicated and explained. Subsequently, some conclusions
of general character are made: 1) In the present problem, the
exchange coefficient and the wind velocity may not be set equal
to zero, even in the first approximation, for in such a case the
evaporation would approach infinity. 2) The formulas derived in
the present paper permit the evaluation of the influence of
horizontal mixing in the wind direction on the evaporation as a
function of the dimensions of the evaporizing area and the physical
conditions of the evaporation process. The larger the evaporizing
area is, the smaller is the influence of horizontal mixing on the
evaporation. 3) Most interesting is the case of relatively small
dimensions of the evaporizing area. In this case, the amount of
total evaporation does not depend on the wind velocity. The neglect
of horizontal mixing in case of small evaporizing areas does not
only bring about incorrect quantitative results, but even a wrong
order of magnitude of the decrease in total evaporation (or
increase in specific evaporation) with an increase in the dimensions

Card 2/3   of the evaporizing area. The authors thank A. M. Zhuravskiy for

2-   valuable advice. There is 1 Soviet reference.

GANDIN, L.S.

STRUCTURE OF METEOROLOGICAL FIELDS
THEIR OBJECTIVE ANALYSIS

by

L.S. Gandin

GANDIN, L. S.

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PHASE I BOOK EXPLOITATION   SOV/5729

Leningrad. Glavnaya geofizicheskaya observatoriya.

Voprosy prikladnoy klimatologii; sbornik statey (Problems in Applied
Climatology; Collection of Articles) Leningrad, Gidrometeoizdat,
1960. 159 p. Errata slip inserted. 1,050 copies printed.

Sponsoring Agency: Glavnoye upravleniye gidrometeorologicheskoy
sluzhby pri Sovete Ministrov SSSR. Glavnaya geofizicheskaya
observatoriya im. A. I. Voyeykova.

Ed. (Title page): F. F. Davitay, Doctor of Agricultural Sciences;
Ed.: L. P. Zhdanova; Tech. Ed.: N. V. Volkov.

PURPOSE : This publication is intended for applied climatologists
and planners in climate-dependent industries.

COVERAGE: This collection of 18 articles contains reports orig-
inally presented at the Conference on Applied Climatology in Lenin-
grad in October 1958. The purpose of the conference was to sum-
marize the results of research done in the field of applied

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Problems in Applied Climatology (Cont.)   SOV/5749

climatology and to point the way for further investigations. In-
dividual articles deal with general problems in applied climat-
ology and special problems in engineering and industrial climat-
ology, medical and health resort climatology, climatic energy
resources, and marine climatology. No personalities are menti...
References follow individual articles.

TABLE OF CONTENTS:

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GANDIN, L.S. [translator], red.; DUBOV, A.S. [translator], red.; VLASOVA, Yu.V., red.; VLADIMIROV, O.G., tekhn.red.

[Numerical methods of weather prediction; collection of translated articles] Chislennye metody prognoza pogody; sbornik perevodnykh statei. Pod red. L.S.Gandina i A.S.Dubova, Leningrad, Gidro-meteor.izd-vo, 1960. 281 p.   (MIRA 13:12)
                    (Weather forecasting)

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S/049/60/000/007/009/009/XX
E031/E335

$\mathcal{G}. 9843$

AUTHORS: Gandin, L.S. and Soloveychik, R.E.

TITLE: On the Distribution of Radioactive Emanation in the Atmosphere Near the Earth

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1960, No. 7, pp. 1077 - 1081

TEXT: S.G. Malakhov (Ref. 1) has reviewed earlier theoretical investigations into the propagation of radioactive emanations in the lower layers of a turbulent atmosphere. Although the increase in the turbulent diffusion with height is considered, the effect of wind is ignored. Hence this paper considers a stationary distribution of a radioactive mixture established under the action of turbulent diffusion in the vertical plane, taking into account transport by wind and radioactive decay as a simple first approximation. The wind is assumed to have constant velocity and direction. The diffusion coefficient is assumed to increase with height according to a power law. A known flow of radioactive mixture enters the atmosphere from a bounded region of the Earth. The concentration is zero along

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On the Distribution of Radioactive Emanation in the Atmosphere
Near the Earth

the wind boundary (x = 0) . The concentration is also zero
at infinite height. The differential equation   (1) with the
boundary conditions (2) - (4) is solved by introducing a
function Q(z;μ) which satisfies the differential equation (5)
with boundary condition (6). The expression for Q is quoted
and it is used as the kernel of an integral transform of the
radioactive concentration. This results in an ordinary
differential equation for the transform function. The solution
is quoted and inverted by use of the Fourier-Bessel transfor-
mation. The final expression for the concentration is given
by Eq. (11). The solution is analysed to clarify the effect
of the wind velocity. For simplicity the case of constant flow
is assumed and the comparison of the case of non-zero wind
velocity with that of zero wind velocity is made at the surface

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On the Distribution of Radioactive Emanation in the Atmosphere
Near the Earth

of the Earth. The ratio of the concentrations is given
by Eq. (16). For small values of the half-life, neglecting
the effect of the wind leads to large errors. The problem
can be generalised in two directions: the first by taking a
more generalised law of turbulence more suitable for greater
altitudes and the second by taking account of horizontal
diffusion. There are 1 table and 7 Soviet references.

ASSOCIATION: Leningradskiy gornyy institut imeni
                G.V. Plekhanova (Leningrad Mining Institute
                imeni G.V. Plekhanov)

SUBMITTED: February 17, 1960

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GANDIN, L.S.; SOLOVEYCHIK, R.E.

Theory of evaporation with an account of horizontal mixing.
Trudy GGO   no.94:127-137 '60.   (MIRA 13:5)
(Evaporation)

COVERAGE: This issue of the Transactions of the Main Geophysical Observatory
contains 18 articles dealing mainly with problems of the physics of the near-
surface air layer. Correlations between the surface wind and geostrophic
wind are examined and the results of both theoretical calculations and
experimental investigations given. Individual articles analyze the
temperature regime of the active surface of soil and the factors determining
the thermal conditions of the boundary layer. Results of fog investigation
are presented in two articles. In addition, some problems of methods in
the experimental investigation of the near-surface layer are elucidated. No
personalities are mentioned. References follow each article.

GANDIN, L.S.

Optimum interpolation and oxtrapolation of meteorlogical fields.
Trudy GGO no.114:75-89 '60.   (MIRA 14:2)
                    (Weather forecasting)